

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An optical module, comprising:
a plurality of groups of ~~multiple~~ optical devices, wherein at least one of the plurality of groups comprises at least two of the multiple optical devices, wherein the at least two optical devices in a group are being of a common device type formed on a common substrate and sharing a common data signal contact, and wherein the group is separated from other groups by at least one grouping trench; so as to define a group, each of the at least two of the multiple optical devices in the group that are adjacent to each other being spaced from others of the at least two of the multiple optical devices in the group by more than a width of an optical fiber and being individually selectable relative to others in the group, and
a controller; coupled to the ~~multiple~~ at least two optical devices ~~such that the controller can and configured to select which one of the at least two optical devices in the group will to be active at a given time to input into the~~ optically couple with an optical fiber.
2. (Currently Amended) The optical module of claim 1, wherein the at least two ~~of the multiple~~ optical devices in the group are lasers.
3. (Currently Amended) The optical module of claim 2, wherein the lasers comprise top emitting lasers.
4. (Currently Amended) The optical module of claim 2, wherein the lasers comprise bottom emitting lasers.
5. (Currently Amended) The optical module of claim 2, wherein the lasers comprise distributed Bragg reflector lasers.

6. (Currently Amended) The optical module of claim 2₁ wherein the lasers comprise distributed feedback lasers.

7. (Currently Amended) The optical module of claim 1₁ wherein the at least two ~~of the multiple~~ optical devices in the group comprise photodetectors.

8. (Currently Amended) The optical module of claim 7₁ wherein the photodetectors comprise top receiving photodetectors.

9. (Currently Amended) The optical module of claim 7₁ wherein the photodetectors comprise bottom receiving photodetectors.

10. (Currently Amended) The optical module of claim 1₁ wherein the ~~multiple plurality of groups of~~ optical devices comprise lasers and photodetectors.

11. (Currently Amended) The optical module of claim 1₁ further comprising memory configured to store activation information for the at least two optical devices in the group.

12. (Currently Amended) The optical module of claim 1₁ further comprising redundancy selection circuitry.

13. (Currently Amended) An optical transceiver₁ comprising:
multiple lasers[[,]];
multiple detectors[[,]];
storage[[,]];
a controller coupled to the storage[[,]]; and
an interface, via which a single optical fiber can be coupled to at least two of the multiple lasers that are adjacent to each other₁ ~~and spaced apart by more than the width of the single optical fiber~~ or at least two of the multiple detectors that are adjacent to each other ~~and spaced apart by more than the width of the single optical fiber~~,
wherein the number of lasers being unequal to is different from the number of detectors,

~~wherein the storage being is~~ configured to identify ~~to the controller an optical device,~~
~~from among a grouped set of redundant optical devices,~~ an optical device that will be an active
optical device,

~~wherein the grouped set being is~~ defined by a grouping trench,
~~and including either wherein the redundant optical devices include~~ the at least two of the
multiple lasers or the at least two of the multiple detectors, and

~~wherein the redundant each optical devices in the grouped set share~~ sharing a common
data input ~~in common~~ and a common electrical contact.

14. (Currently Amended) An optical transceiver, comprising:

at least two optical devices of a first type formed adjacent to each other on a common
substrate to form a group, wherein the group is separated from other groups by at least one
grouping trench and is configured for coupling to a single optical fiber, ~~the at least two optical~~
~~devices of the first type being spaced apart from each other by a distance greater than a width of~~
~~the single optical fiber; and~~

an optical device of a second type different from the first type and configured for
coupling to a second optical fiber,

wherein the at least two optical devices of the first type ~~being~~ are related to each other by
a common connection such that they can each receive a single source signal and are individually
selectable for activation at a given time such that ~~at least~~ one of the at least two optical devices
can be automatically substituted for an ☐ other of the at least two optical devices ~~when if~~ the
other of the at least two optical devices is a bad device.

15. (Currently Amended) The optical transceiver of claim 14, wherein the at least two
optical devices of the first type comprise lasers.

16. (Currently Amended) The optical transceiver of claim 15, wherein the lasers comprise
top emitting lasers.

17. (Currently Amended) The optical transceiver of claim 15, wherein the lasers comprise bottom emitting lasers.

18. (Currently Amended) The optical transceiver of claim 15, wherein the lasers comprise distributed Bragg reflector lasers.

19. (Currently Amended) The optical transceiver of claim 15, wherein the lasers comprise distributed feedback lasers.

20. (Currently Amended) The optical transceiver of claim 14, wherein the at least two optical devices of the first type comprise photodetectors.

21. (Currently Amended) The optical transceiver of claim 20, wherein the photodetectors comprise top receiving photodetectors.

22. (Currently Amended) The optical transceiver of claim 20, wherein the photodetectors comprise bottom receiving photodetectors.

23. (Currently Amended) The optical transceiver of claim 14, wherein the ~~multiple~~ at least two optical devices comprise lasers and photodetectors.

24. (Currently Amended) The optical transceiver of claim 14, further comprising memory configured to store activation information for the at least two optical devices.

25. (Currently Amended) The optical transceiver of claim 14, further comprising redundancy selection circuitry.

26. (Currently Amended) An optical chip, comprising[[:]] a group of optical devices formed on a common substrate and being of a common type, wherein the group ~~being~~ is defined by a grouping trench, ~~the group being~~ and is arranged such that adjacent optical devices in the group are spaced apart by at least the width of a single optical fiber and configured for coupling to ~~the~~ a single common optical fiber, wherein the optical devices ~~being~~ are selectable based upon

an active indication[[,]] such that one of the optical devices in the group will be an active device and another of the optical devices in the group will be a backup-optical device, and wherein the active device and the backup-optical device-being are individually selectable such that, if the active device fails, the active device will be deselected and the backup-optical device will be selected for use in place of the active device ~~as a new active device~~.

27. (Currently Amended) The optical chip of claim 26, further comprising[[:]] storage configured to store the active indication.

28. (Currently Amended) The optical chip of claim 26, wherein the group of optical devices comprise lasers.

29. (Currently Amended) The optical chip of claim 26, wherein the group of optical devices comprise photodetectors.

30. (Currently Amended) The optical chip of claim 26, further comprising a common electrical connection among all of the optical devices in the group.

31. (Currently Amended) The optical chip of claim 26, wherein the ~~group of~~ optical devices within the group are separated by ~~are related by a grouping~~ at least one separation trench.

32. (Currently Amended) The optical chip of claim 26, further comprising multiple fusible links, ~~and wherein the active device is determined by a state of at least one~~ of the multiple fusible links.

33. (Currently Amended) A method of creating an optical chip having redundant devices for use in an opto-electronic unit, the method comprising:

growing active portions of multiple optical devices on a wafer using a semiconductor material[[,]]; .

processing the wafer to create complete optical devices[[,]]; .

patterning the semiconductor material to create individual optical devices[[,]]; .

grouping the devices by forming grouping trenches in the wafer around sets of at least two of the individual devices of a common type, ~~the at least two of the individual devices being spaced apart from each other by a distance greater than the width of an optical fiber; and~~

connecting each of the at least two devices to a control circuit such that ~~[[,]]~~ common data can be received by any of the at least two devices in a set from a single optical fiber but the common data will only be handled by ~~a device~~ one of the at least two devices in the set that is an active device.

34. (Currently Amended) The method of claim 33, further comprising:
identifying the active device from the at least two devices in the set; and
storing data for identifying ~~that identified the device of the at least two devices in the group that is the active device.~~

35. – 41. (Cancelled).

42. (Currently Amended) An optical transceiver comprising:
a first number of detectors;
a second number of semiconductor laser transmitters organized as a group defined by a grouping trench, wherein at least some of the laser transmitters in the group ~~being~~ are redundant for others of the laser transmitters in the group, ~~the laser transmitters in the group being spaced apart from each other by a distance greater than a width of an optical fiber to which the laser transmitters will be coupled; and~~
a controller, ~~coupled to at least the laser transmitters that controls~~ configured to control which of the ~~number of~~ laser transmitters are active transmitters and which of the ~~number of~~ laser transmitters are redundant transmitters.

43. (Currently Amended) The optical transceiver of claim 42, wherein the first number of ~~transmitters~~ is at least twice the second ~~number of receivers~~.

44. (Currently Amended) The optical transceiver of claim 42, wherein the first number-of transmitters is equal to equals the second number-of receivers.

45. (Currently Amended) The optical transceiver of claim 42, wherein the first number-of transmitters is three times the second number-of receivers.

46. (Currently Amended) The optical transceiver of claim 42, wherein the first number-of transmitters is four times the second number-of receivers.

47. (Currently Amended) The optical transceiver of claim 42, wherein the ~~number of laser~~ transmitters ~~comprises~~ are organized as at least two groups.

48. (Currently Amended) The optical transceiver of claim 47, wherein one of the at least two groups comprises two lasers.

49. (Currently Amended) The optical transceiver of claim 47, wherein one of the at least two groups comprises three lasers, and wherein at least one of the three lasers is a ~~backup laser~~ redundant.

50. (Currently Amended) The optical transceiver of claim 49, wherein exactly one of the three lasers is ~~the backup laser~~ redundant.

51. (Currently Amended) The optical transceiver of claim 49, wherein exactly two of the three lasers are ~~the backup laser~~ redundant.

52. (Currently Amended) A communications network, comprising:
a first transmitter comprising a number of usable channels[.];
a first receiver[.]; and
optical fibers ~~connecting~~ coupling the first transmitter to the first receiver,
wherein the first transmitter further ~~comprising~~ comprises multiple lasers formed on a common substrate and organized into a group defined by a grouping trench, wherein at least two of the multiple lasers in the group are ~~each being~~ configured to couple to one of the optical fibers;

~~being spaced apart from each other by at least the width of the one of the optical fibers and being~~
are selectable as either active lasers or backup lasers to be active or redundant,

wherein the multiple lasers ~~being~~ are controllable such that, if a specific channel is in use by an active laser and a laser failure occurs for ~~that the specific channel~~, a redundant laser can be substituted for the active laser, and wherein the redundant laser and the active laser ~~being~~ are from the same group and, after the substitution, the specific channel ~~can be used using~~ is in use by the redundant laser.

53 . (Currently Amended) The communications network of claim 52, wherein the first transmitter further comprises a programmable laser selection control.

54. (Currently Amended) The communications network of claim 52, wherein the first transmitter further comprises a transmitter failure detection sensor.

55. (Currently Amended) The communications network of claim 52, further comprising an automatic failover circuit.

56. (New) The optical module of claim 1, wherein the at least two of optical devices in the group are configured to have carrier movement therebetween.

57. (New) The optical module of claim 56, wherein the common substrate is electrically conductive, and wherein the carrier movement is through the electrically conductive common substrate.

58. (New) The optical module of claim 1, wherein the optical devices within one group are separated by at least one separation trench configured to isolate individual device contacts.

59. (New) The optical module of claim 1, wherein the controller is coupled to the optical devices via contact pads.

60. (New) The optical module of claim 59, wherein the controller is disposed on an electronic chip, and wherein the optical devices are flip-chip bonded to the electronic chip.

61. (New) The method of claim 33, wherein connecting each of the at least two devices to a control circuit comprises flip-chip bonding the at least two devices to an electronic chip containing the control circuit.